SEQUENCE LISTING

<110> Madeline M. Butler
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<120> ANTISENSE MODULATION OF HORMONE-SENSITIVE LIPASE EXPRESSION

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ccttaaaaag gaagaccagt gatgctagga tggagtgaaa cccaagagga agtgccatca 180
tgaggaatca atgagagatc tgtgaagaga gagggctggg tgggagccca gaaggataga 240
acctggaaga tcaatatctc ccgtgaggga aataaca atg gag cca ggt tct aag 295
Met Glu Pro Gly Ser Lys
1 5

tca gtg tct agg tca gac tgg caa cct gaa cca cac cag agg cct ata 343
Ser Val Ser Arg Ser Asp Trp Gln Pro Glu Pro His Gln Arg Pro Ile
10 15 20

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acc ccg cta gag cct ggg cca gaa aag aca ccc ata gcc cag cca gaa   391
Thr Pro Leu Glu Pro Gly Pro Glu Lys Thr Pro Ile Ala Gln Pro Glu
          25                  30                  35

tcg aag act ctg cag gga tcc aat acc caa cag aag cct gct tca aac   439
Ser Lys Thr Leu Gln Gly Ser Asn Thr Gln Gln Lys Pro Ala Ser Asn
      40                  45                  50

caa aga ccc ctc acc cag cag gag acc cct gca caa cat gat gct gaa   487
Gln Arg Pro Leu Thr Gln Gln Glu Thr Pro Ala Gln His Asp Ala Glu
 55                  60                  65                  70

tcc cag aag gaa cct aga gcc caa caa aaa tct gct tca caa gag gaa   535
Ser Gln Lys Glu Pro Arg Ala Gln Gln Lys Ser Ala Ser Gln Glu Glu
                 75                  80                  85

ttt ctt gcc cca cag aag ccc gca cca cag caa tca cct tac atc caa   583
Phe Leu Ala Pro Gln Lys Pro Ala Pro Gln Gln Ser Pro Tyr Ile Gln
             90                  95                 100

agg gtg ctg ctc act caa cag gaa gct gcc tcc cag cag gga cct ggg   631
Arg Val Leu Leu Thr Gln Gln Glu Ala Ala Ser Gln Gln Gly Pro Gly
         105                 110                 115

cta gga aaa gaa tct ata act caa cag gag cca gca ttg aga caa aga   679
Leu Gly Lys Glu Ser Ile Thr Gln Gln Glu Pro Ala Leu Arg Gln Arg
     120                 125                 130

cat gta gcc cag cca ggg cct ggg cca gga gag cca cct cca gct caa   727
His Val Ala Gln Pro Gly Pro Gly Pro Gly Glu Pro Pro Pro Ala Gln
135                 140                 145                 150

caa gaa gct gaa tca aca cct gcg gcc cag gct aaa cct gga gcc aaa   775
Gln Glu Ala Glu Ser Thr Pro Ala Ala Gln Ala Lys Pro Gly Ala Lys
                155                 160                 165

agg gag cca tct gcc ccg act gaa tct aca tcc caa gag aca cct gaa   823
Arg Glu Pro Ser Ala Pro Thr Glu Ser Thr Ser Gln Glu Thr Pro Glu
            170                 175                 180

cag tca gac aag caa aca acg cca gtc cag gga gcc aaa tcc aag cag   871
Gln Ser Asp Lys Gln Thr Thr Pro Val Gln Gly Ala Lys Ser Lys Gln
        185                 190                 195

gga tct ttg aca gag ctg gga ttt cta aca aaa ctt cag gaa cta tcc   919
Gly Ser Leu Thr Glu Leu Gly Phe Leu Thr Lys Leu Gln Glu Leu Ser
    200                 205                 210

ata cag cga tca gcc cta gag tgg aag gca ctt tct gag tgg gtc gca   967
Ile Gln Arg Ser Ala Leu Glu Trp Lys Ala Leu Ser Glu Trp Val Ala
215                 220                 225                 230

gat tct gag tca gaa tca gat gtg gga tca tct tca gac aca gat tct  1015
Asp Ser Glu Ser Glu Ser Asp Val Gly Ser Ser Ser Asp Thr Asp Ser
                235                 240                 245

cca gcc acg atg ggt gga atg gtg gcc cag gga gtg aag cta ggc ttc  1063
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Pro Ala Thr Met Gly Gly Met Val Ala Gln Gly Val Lys Leu Gly Phe
            250                 255                 260

aaa gga aaa tct ggt tat aaa gtg atg tca gga tac agt ggg acg tcg   1111
Lys Gly Lys Ser Gly Tyr Lys Val Met Ser Gly Tyr Ser Gly Thr Ser
        265                 270                 275

cca cat gag aaa acc agt gct cgg aat cac aga cac tac cag gat aca   1159
Pro His Glu Lys Thr Ser Ala Arg Asn His Arg His Tyr Gln Asp Thr
    280                 285                 290

gcc tca agg ctc atc cac aac atg gac ctg cgc aca atg aca cag tcg   1207
Ala Ser Arg Leu Ile His Asn Met Asp Leu Arg Thr Met Thr Gln Ser
295                 300                 305                 310

ctg gtg act ctg gcg gag gac aac ata gcc ttc ttc tcg agc cag ggt   1255
Leu Val Thr Leu Ala Glu Asp Asn Ile Ala Phe Phe Ser Ser Gln Gly
                315                 320                 325

cct ggg gaa acg gcc cag cgg ctg tca ggc gtt ttt gcc ggt gta cgg   1303
Pro Gly Glu Thr Ala Gln Arg Leu Ser Gly Val Phe Ala Gly Val Arg
            330                 335                 340

gag cag gcg ctg ggg ctg gag ccg gcc ctg ggc cgc ctg ctg ggt gtg   1351
Glu Gln Ala Leu Gly Leu Glu Pro Ala Leu Gly Arg Leu Leu Gly Val
        345                 350                 355

gcg cac ctc ttt gac ctg gac cca gag aca ccg gcc aac ggg tac cgc   1399
Ala His Leu Phe Asp Leu Asp Pro Glu Thr Pro Ala Asn Gly Tyr Arg
    360                 365                 370

agc cta gtg cac aca gcc cgc tgc tgc ctg gcg cac ctc ctg cac aaa   1447
Ser Leu Val His Thr Ala Arg Cys Cys Leu Ala His Leu Leu His Lys
375                 380                 385                 390

tcc cgc tat gtg gcc tcc aac cgc cgc agc atc ttc ttc cgc acc agc   1495
Ser Arg Tyr Val Ala Ser Asn Arg Arg Ser Ile Phe Phe Arg Thr Ser
                395                 400                 405

cac aac ctg gcc gag ctg gag gcc tac ctg gct gcc ctc acc cag ctc   1543
His Asn Leu Ala Glu Leu Glu Ala Tyr Leu Ala Ala Leu Thr Gln Leu
            410                 415                 420

cgc gct ctg gtc tac tac gcc cag cgc ctg ctg gtt acc aat cgg ccg   1591
Arg Ala Leu Val Tyr Tyr Ala Gln Arg Leu Leu Val Thr Asn Arg Pro
        425                 430                 435

ggg gta ctc ttc ttt gag ggc gac gag ggg ctc acc gcc gac ttc ctc   1639
Gly Val Leu Phe Phe Glu Gly Asp Glu Gly Leu Thr Ala Asp Phe Leu
    440                 445                 450

cgg gag tat gtc acg ctg cat aag gga tgc ttc tat ggc cgc tgc ctg   1687
Arg Glu Tyr Val Thr Leu His Lys Gly Cys Phe Tyr Gly Arg Cys Leu
455                 460                 465                 470

ggc ttc cag ttc acg cct gcc atc cgg cca ttc ctg cag acc atc tcc   1735
Gly Phe Gln Phe Thr Pro Ala Ile Arg Pro Phe Leu Gln Thr Ile Ser
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                475                 480                 485

att ggg ctg gtg tcc ttc ggg gag cac tac aaa cgc aac gag aca ggc   1783
Ile Gly Leu Val Ser Phe Gly Glu His Tyr Lys Arg Asn Glu Thr Gly
            490                 495                 500

ctc agt gtg gcc gcc agc tct ctc ttc acc agc ggc cgc ttt gcc atc   1831
Leu Ser Val Ala Ala Ser Ser Leu Phe Thr Ser Gly Arg Phe Ala Ile
        505                 510                 515

gac ccc gag ctg cgt ggg gct gag ttt gag cgg atc aca cag aac ctg   1879
Asp Pro Glu Leu Arg Gly Ala Glu Phe Glu Arg Ile Thr Gln Asn Leu
    520                 525                 530

gac gtg cac ttc tgg aaa gcc ttc tgg aac atc acc gag atg gaa gtg   1927
Asp Val His Phe Trp Lys Ala Phe Trp Asn Ile Thr Glu Met Glu Val
535                 540                 545                 550

cta tcg tct ctg gcc aac atg gca tcg gcc acc gtg agg gta agc cgc   1975
Leu Ser Ser Leu Ala Asn Met Ala Ser Ala Thr Val Arg Val Ser Arg
                555                 560                 565

ctg ctc agc ctg cca ccc gaa gcc ttt gag atg cca ctg act gcc gac   2023
Leu Leu Ser Leu Pro Pro Glu Ala Phe Glu Met Pro Leu Thr Ala Asp
            570                 575                 580

ccc acg ctc acg gtc acc atc tca ccc cca ctg gcc cac aca ggc cct   2071
Pro Thr Leu Thr Val Thr Ile Ser Pro Pro Leu Ala His Thr Gly Pro
        585                 590                 595

ggg ccc gtc ctc gtc agg ctc atc tcc tat gac ctg cgt gaa gga cag   2119
Gly Pro Val Leu Val Arg Leu Ile Ser Tyr Asp Leu Arg Glu Gly Gln
    600                 605                 610

gac agt gag gag ctc agc agc ctg ata aag tcc aac ggc caa cgg agc   2167
Asp Ser Glu Glu Leu Ser Ser Leu Ile Lys Ser Asn Gly Gln Arg Ser
615                 620                 625                 630

ctg gag ctg tgg ccg cgc ccc cag cag gca ccc cgc tcg cgg tcc ctg   2215
Leu Glu Leu Trp Pro Arg Pro Gln Gln Ala Pro Arg Ser Arg Ser Leu
                635                 640                 645

ata gtg cac ttc cac ggc ggt ggc ttt gtg gcc cag acc tcc aga tcc   2263
Ile Val His Phe His Gly Gly Gly Phe Val Ala Gln Thr Ser Arg Ser
            650                 655                 660

cac gag ccc tac ctc aag agc tgg gcc cag gag ctg ggc gcc ccc atc   2311
His Glu Pro Tyr Leu Lys Ser Trp Ala Gln Glu Leu Gly Ala Pro Ile
        665                 670                 675

atc tcc atc gac tac tcc ctg gcc cct gag gcc ccc ttc ccc cgt gcg   2359
Ile Ser Ile Asp Tyr Ser Leu Ala Pro Glu Ala Pro Phe Pro Arg Ala
    680                 685                 690

ctg gag gag tgc ttc ttc gcc tac tgc tgg gcc atc aag cac tgc gcc   2407
Leu Glu Glu Cys Phe Phe Ala Tyr Cys Trp Ala Ile Lys His Cys Ala
695                 700                 705                 710
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ctc ctt ggc tca aca ggg gaa cga atc tgc ctt gcg ggg gac agt gca     2455
Leu Leu Gly Ser Thr Gly Glu Arg Ile Cys Leu Ala Gly Asp Ser Ala
                715                 720                 725

ggc ggg aac ctc tgc ttc acc gtg gct ctt cgg gca gca gcc tac ggg     2503
Gly Gly Asn Leu Cys Phe Thr Val Ala Leu Arg Ala Ala Ala Tyr Gly
            730                 735                 740

gtg cgg gtg cca gat ggc atc atg gca gcc tac ccg gcc aca atg ctg     2551
Val Arg Val Pro Asp Gly Ile Met Ala Ala Tyr Pro Ala Thr Met Leu
        745                 750                 755

cag cct gcc gcc tct ccc tcc cgc ctg ctg agc ctc atg gac ccc ttg     2599
Gln Pro Ala Ala Ser Pro Ser Arg Leu Leu Ser Leu Met Asp Pro Leu
    760                 765                 770

ctg ccc ctc agt gtg ctc tcc aag tgt gtc agc gcc tat gct ggt gca     2647
Leu Pro Leu Ser Val Leu Ser Lys Cys Val Ser Ala Tyr Ala Gly Ala
775                 780                 785                 790

aag acg gag gac cac tcc aac tca gac cag aaa gcc ctc ggc atg atg     2695
Lys Thr Glu Asp His Ser Asn Ser Asp Gln Lys Ala Leu Gly Met Met
                795                 800                 805

ggg ctg gtg cgg cgg gac aca gcc ctg ctc ctc cga gac ttc cgc ctg     2743
Gly Leu Val Arg Arg Asp Thr Ala Leu Leu Leu Arg Asp Phe Arg Leu
            810                 815                 820

ggt gcc tcc tca tgg ctc aac tcc ttc ctg gag tta agt ggg cgc aag     2791
Gly Ala Ser Ser Trp Leu Asn Ser Phe Leu Glu Leu Ser Gly Arg Lys
        825                 830                 835

tcc cag aag atg tcg gag ccc ata gca gag ccg atg cgc cgc agt gtg     2839
Ser Gln Lys Met Ser Glu Pro Ile Ala Glu Pro Met Arg Arg Ser Val
    840                 845                 850

tct gaa gca gca ctg gcc cag ccc cag ggc cca ctg ggc acg gat tcc     2887
Ser Glu Ala Ala Leu Ala Gln Pro Gln Gly Pro Leu Gly Thr Asp Ser
855                 860                 865                 870

ctc aag aac ctg acc ctg agg gac ttg agc ctg agg gga aac tcc gag     2935
Leu Lys Asn Leu Thr Leu Arg Asp Leu Ser Leu Arg Gly Asn Ser Glu
                875                 880                 885

acg tcg tcg gac acc ccc gag atg tcg ctg tca gct gag aca ctt agc     2983
Thr Ser Ser Asp Thr Pro Glu Met Ser Leu Ser Ala Glu Thr Leu Ser
            890                 895                 900

ccc tcc aca ccc tcc gat gtc aac ttc tta tta cca cct gag gat gca     3031
Pro Ser Thr Pro Ser Asp Val Asn Phe Leu Leu Pro Pro Glu Asp Ala
        905                 910                 915

ggg gaa gag gct gag gcc aaa aat gag ctg agc ccc atg gac aga ggc     3079
Gly Glu Glu Ala Glu Ala Lys Asn Glu Leu Ser Pro Met Asp Arg Gly
    920                 925                 930
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ctg ggc gtc cgt gcc gcc ttc ccc gag ggt ttc cac ccc cga cgc tcc   3127
Leu Gly Val Arg Ala Ala Phe Pro Glu Gly Phe His Pro Arg Arg Ser
935                 940                 945                 950

agc cag ggt gcc aca cag atg ccc ctc tac tcc tca ccc ata gtc aag   3175
Ser Gln Gly Ala Thr Gln Met Pro Leu Tyr Ser Ser Pro Ile Val Lys
                955                 960                 965

aac ccc ttc atg tcg ccg ctg ctg gca ccc gac agc atg ctc aag agc   3223
Asn Pro Phe Met Ser Pro Leu Leu Ala Pro Asp Ser Met Leu Lys Ser
            970                 975                 980

ctg cca cct gtg cac atc gtg gcg tgc gcg ctg gac ccc atg ctg gac   3271
Leu Pro Pro Val His Ile Val Ala Cys Ala Leu Asp Pro Met Leu Asp
        985                 990                 995

gac tcg gtc atg ctc gcg cgg cga ctg cgc aac ctg ggc cag ccg gtg   3319
Asp Ser Val Met Leu Ala Arg Arg Leu Arg Asn Leu Gly Gln Pro Val
    1000                1005                1010

acg ctg cgc gtg gtg gag gac ctg ccg cac ggc ttc ctg acc cta gcg   3367
Thr Leu Arg Val Val Glu Asp Leu Pro His Gly Phe Leu Thr Leu Ala
1015                1020                1025                1030

gcg ctg tgc cgc gag acg cgc cag gcc gca gag ctg tgc gtg gag cgc   3415
Ala Leu Cys Arg Glu Thr Arg Gln Ala Ala Glu Leu Cys Val Glu Arg
                1035                1040                1045

atc cgc ctc gtc ctc act cct ccc gcc gga gcc ggg ccg agc ggg gag   3463
Ile Arg Leu Val Leu Thr Pro Pro Ala Gly Ala Gly Pro Ser Gly Glu
            1050                1055                1060

acg ggg gct gcg ggg gta gac ggg ggc tgc ggg ggg cga cac taa       3508
Thr Gly Ala Ala Gly Val Asp Gly Gly Cys Gly Gly Arg His
        1065                1070                1075

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gacctgcacg ccaccgctgc cttttgctgc tgctgctgcg gcgaccgccg cagggacggg 3748
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gggtaaccac agaccttccc atcttctcac agcctcagcg ttctcacaca gc atg gat 598
                                                          Met Asp
                                                           1

tta cgc acg atg aca cag tcg ctg gtg aca ctc gca gaa gac aat atg    646
Leu Arg Thr Met Thr Gln Ser Leu Val Thr Leu Ala Glu Asp Asn Met
        5                  10                  15

gcc ttc ttc tca agc cag ggc cca gga gag aca gca cgg cgg ctg tct    694
Ala Phe Phe Ser Ser Gln Gly Pro Gly Glu Thr Ala Arg Arg Leu Ser
    20                  25                  30

aat gtc ttt gca ggt gtt cgg gaa cag gca ctg ggg ctg gaa cca acc    742
Asn Val Phe Ala Gly Val Arg Glu Gln Ala Leu Gly Leu Glu Pro Thr
 35                  40                  45                  50

cta ggc caa ctg ttg ggt gtg gca cac cat ttt gac ctg gac aca gag    790
Leu Gly Gln Leu Leu Gly Val Ala His His Phe Asp Leu Asp Thr Glu
                 55                  60                  65

aca cca gcc aac gga tac cgt agt ttg gtg cac aca gcc cga tgc tgc    838
Thr Pro Ala Asn Gly Tyr Arg Ser Leu Val His Thr Ala Arg Cys Cys
             70                  75                  80

ctg gca cac cta cta cac aaa tcc cgc tat gtg gct tct aac cgc aaa    886
Leu Ala His Leu Leu His Lys Ser Arg Tyr Val Ala Ser Asn Arg Lys
        85                  90                  95

agt atc ttc ttc cgt gcc agc cac aac cta gca gag ctg gag gcc tac    934
Ser Ile Phe Phe Arg Ala Ser His Asn Leu Ala Glu Leu Glu Ala Tyr
    100                 105                 110

ctg gcc gcc ctc acc cag ctc cgt gct atg gcc tac tat gcc cag cgc    982
Leu Ala Ala Leu Thr Gln Leu Arg Ala Met Ala Tyr Tyr Ala Gln Arg
115                 120                 125                 130

ctg ctg acc atc aac cga cca gga gtg ctc ttc ttc gag ggt gat gaa    1030
Leu Leu Thr Ile Asn Arg Pro Gly Val Leu Phe Phe Glu Gly Asp Glu
                135                 140                 145

gga ctc acc gct gac ttc ctg caa gag tat gtc acg cta cac aaa ggc    1078
Gly Leu Thr Ala Asp Phe Leu Gln Glu Tyr Val Thr Leu His Lys Gly
            150                 155                 160
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tgc ttc tac ggc cgc tgc ctg ggc ttc cag ttc aca cct gcc atc cgg    1126
Cys Phe Tyr Gly Arg Cys Leu Gly Phe Gln Phe Thr Pro Ala Ile Arg
        165                 170                 175

ccg ttc ctg cag act ctc tcc atc ggg ctg gtg tcc ttc ggg gag cac    1174
Pro Phe Leu Gln Thr Leu Ser Ile Gly Leu Val Ser Phe Gly Glu His
    180                 185                 190

tac aaa cgc aac gag aca ggc ctc agt gtg acc gcc agt tcc ctc ttt    1222
Tyr Lys Arg Asn Glu Thr Gly Leu Ser Val Thr Ala Ser Ser Leu Phe
195                 200                 205                 210

acc ggt ggc cga ttc gcc ata gac cca gag ttg cgt ggg gct gaa ttt    1270
Thr Gly Gly Arg Phe Ala Ile Asp Pro Glu Leu Arg Gly Ala Glu Phe
                215                 220                 225

gaa cgc atc ata cag aac ctg gat gtg cac ttc tgg aaa gcc ttc tgg    1318
Glu Arg Ile Ile Gln Asn Leu Asp Val His Phe Trp Lys Ala Phe Trp
            230                 235                 240

aac atc act gag att gag gtg ctg tcg tct ctg gcc aac atg gca tca    1366
Asn Ile Thr Glu Ile Glu Val Leu Ser Ser Leu Ala Asn Met Ala Ser
        245                 250                 255

acc act gtg agg gta agc cgc ctg ctc agc ttg cca cct gag gcc ttt    1414
Thr Thr Val Arg Val Ser Arg Leu Leu Ser Leu Pro Pro Glu Ala Phe
    260                 265                 270

gag atg cca ctc acc tct gat ccc agg ctc aca gtt acc atc tca cct    1462
Glu Met Pro Leu Thr Ser Asp Pro Arg Leu Thr Val Thr Ile Ser Pro
275                 280                 285                 290

ccc ttg gca cac acg gga cca gct cct gtg cta gcc agg ctc atc tcc    1510
Pro Leu Ala His Thr Gly Pro Ala Pro Val Leu Ala Arg Leu Ile Ser
                295                 300                 305

tat gac cta cgg gaa gga cag gac agc aag gta ctc aac agc ctg gca    1558
Tyr Asp Leu Arg Glu Gly Gln Asp Ser Lys Val Leu Asn Ser Leu Ala
            310                 315                 320

aaa tct gag ggc cca cgc ctg gac gtg cgc cca cgg cct cac caa gca    1606
Lys Ser Glu Gly Pro Arg Leu Asp Val Arg Pro Arg Pro His Gln Ala
        325                 330                 335

ccc cgt tca cgg gcc ctg gtt gtt cac atc cac gga ggc ggc ttt gtg    1654
Pro Arg Ser Arg Ala Leu Val Val His Ile His Gly Gly Gly Phe Val
    340                 345                 350

gca cag acc tct aaa tcc cac gag ccc tac ctc aag aac tgg gcc cag    1702
Ala Gln Thr Ser Lys Ser His Glu Pro Tyr Leu Lys Asn Trp Ala Gln
355                 360                 365                 370

gag cta gga gtc cct atc ttc tcc atc gac tac tcc ctg gcc ccc gag    1750
Glu Leu Gly Val Pro Ile Phe Ser Ile Asp Tyr Ser Leu Ala Pro Glu
                375                 380                 385

gct ccc ttt ccc cga gcg ctg gag gag tgt ttt ttt gcc tac tgc tgg    1798
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Ala Pro Phe Pro Arg Ala Leu Glu Glu Cys Phe Phe Ala Tyr Cys Trp
            390                 395                 400

gct gtc aag cac tgt gac ctg ctt ggt tca act gga gag cgg ata tgc   1846
Ala Val Lys His Cys Asp Leu Leu Gly Ser Thr Gly Glu Arg Ile Cys
        405                 410                 415

ctt gca ggg gac agt gca ggt ggg aat ctc tgc atc act gtg tcc ctt   1894
Leu Ala Gly Asp Ser Ala Gly Gly Asn Leu Cys Ile Thr Val Ser Leu
    420                 425                 430

cgg gca gca gcc tat gga gtg agg gtg cca gat ggc atc atg gca gcc   1942
Arg Ala Ala Ala Tyr Gly Val Arg Val Pro Asp Gly Ile Met Ala Ala
435                 440                 445                 450

tac cca gtt acc acc ctg cag tcc tct gct tct ccc tct cgt ctg ctg   1990
Tyr Pro Val Thr Thr Leu Gln Ser Ser Ala Ser Pro Ser Arg Leu Leu
                455                 460                 465

agc ctc atg gac cct ctt cta cca ctg agc gta ctc tct aag tgt gtc   2038
Ser Leu Met Asp Pro Leu Leu Pro Leu Ser Val Leu Ser Lys Cys Val
            470                 475                 480

agt gcc tat tca ggg aca gag gca gag gac cat ttt gac tca gac cag   2086
Ser Ala Tyr Ser Gly Thr Glu Ala Glu Asp His Phe Asp Ser Asp Gln
        485                 490                 495

aag gca cta ggc gtg atg ggg ctg gtg cag aga gac act tcg ctg ttc   2134
Lys Ala Leu Gly Val Met Gly Leu Val Gln Arg Asp Thr Ser Leu Phe
    500                 505                 510

ctc aga gac ctc cga ctg ggt gcc tcc tca tgg ctc aac tcc ttc ccg   2182
Leu Arg Asp Leu Arg Leu Gly Ala Ser Ser Trp Leu Asn Ser Phe Pro
515                 520                 525                 530

gaa cta agt gga cgc aag ccc caa aag acc aca tcg ccc aca gca gag   2230
Glu Leu Ser Gly Arg Lys Pro Gln Lys Thr Thr Ser Pro Thr Ala Glu
                535                 540                 545

tct gtg cgc ccc acg gag tct atg cgc agg agt gtg tct gag gca gcc   2278
Ser Val Arg Pro Thr Glu Ser Met Arg Arg Ser Val Ser Glu Ala Ala
            550                 555                 560

ctg gcc cag cct gag ggc tta ctg ggc aca gat acc ttg aag aag ctg   2326
Leu Ala Gln Pro Glu Gly Leu Leu Gly Thr Asp Thr Leu Lys Lys Leu
        565                 570                 575

aca ata aag gac ttg agc aac tca gag cct tca gac agc ccc gag atg   2374
Thr Ile Lys Asp Leu Ser Asn Ser Glu Pro Ser Asp Ser Pro Glu Met
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tca cag tca atg gag aca ctt ggc ccc tcc aca ccc tct gat gtc aac   2422
Ser Gln Ser Met Glu Thr Leu Gly Pro Ser Thr Pro Ser Asp Val Asn
595                 600                 605                 610

ttt ttt ctg cgg cct ggg aat tcc cag gaa gag gct gaa gcc aaa gat   2470
Phe Phe Leu Arg Pro Gly Asn Ser Gln Glu Glu Ala Glu Ala Lys Asp
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gaa gtg aga ccc atg gac gga gtc ccc cgc gtg cgc gct gct ttc cct   2518
Glu Val Arg Pro Met Asp Gly Val Pro Arg Val Arg Ala Ala Phe Pro
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gag ggg ttt cac ccc cgg cgc tca agc caa ggt gtc ctc cac atg ccc   2566
Glu Gly Phe His Pro Arg Arg Ser Ser Gln Gly Val Leu His Met Pro
        645                 650                 655

ctc tac acg tca ccc ata gtc aag aac ccc ttc atg tct cct ctg ctg   2614
Leu Tyr Thr Ser Pro Ile Val Lys Asn Pro Phe Met Ser Pro Leu Leu
    660                 665                 670

gcc cct gac agc atg ctg aag acc ttg ccg cct gtg cac ctt gtg gct   2662
Ala Pro Asp Ser Met Leu Lys Thr Leu Pro Pro Val His Leu Val Ala
675                 680                 685                 690

tgc gct ctg gac ccc atg cta gat gac tcg gtc atg ttc gcg cgg cga   2710
Cys Ala Leu Asp Pro Met Leu Asp Asp Ser Val Met Phe Ala Arg Arg
                695                 700                 705

ctg cgc gac ctg ggc cag ccg gtg acg ctg aaa gtg gta gaa gat ctg   2758
Leu Arg Asp Leu Gly Gln Pro Val Thr Leu Lys Val Val Glu Asp Leu
            710                 715                 720

ccg cat ggc ttc ctg agc ctg gcg gca ctg tgt cgc gag acc cgg cag   2806
Pro His Gly Phe Leu Ser Leu Ala Ala Leu Cys Arg Glu Thr Arg Gln
        725                 730                 735

gcc acg gag ttc tgc gtg cag cgc atc cgg ctg atc ctc acc ccg cct   2854
Ala Thr Glu Phe Cys Val Gln Arg Ile Arg Leu Ile Leu Thr Pro Pro
    740                 745                 750

gct gca cca ctg aac tga gctggggacg gcgggggcg gcactaaaag           2902
Ala Ala Pro Leu Asn
755

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cctgcccaca gcctcaaggc tcatccacaa c atg gac ctg cgc aca atg aca 652
Met Asp Leu Arg Thr Met Thr
1 5

cag tcg ctg gtg act ctg gcg gag gac aac ata gcc ttc ttc tcg agc 700
Gln Ser Leu Val Thr Leu Ala Glu Asp Asn Ile Ala Phe Phe Ser Ser
10 15 20

cag ggt cct ggg gaa acg gcc cag cgg ctg tca ggc gtt ttt gcc ggt 748
Gln Gly Pro Gly Glu Thr Ala Gln Arg Leu Ser Gly Val Phe Ala Gly
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gta cgg gag cag gcg ctg ggg ctg gag ccg gcc ctg ggc cgc ctg ctg 796
Val Arg Glu Gln Ala Leu Gly Leu Glu Pro Ala Leu Gly Arg Leu Leu
40 45 50 55

ggt gtg gcg cac ctc ttt gac ctg gac cca gag aca ccg gcc aac ggg 844
Gly Val Ala His Leu Phe Asp Leu Asp Pro Glu Thr Pro Ala Asn Gly
60 65 70

tac cgc agc cta gtg cac aca gcc cgc tgc tgc ctg gcg cac ctc ctg 892
Tyr Arg Ser Leu Val His Thr Ala Arg Cys Cys Leu Ala His Leu Leu
75 80 85

cac aaa tcc cgc tat gtg gcc tcc aac cgc cgc agc atc ttc ttc cgc 940
His Lys Ser Arg Tyr Val Ala Ser Asn Arg Arg Ser Ile Phe Phe Arg
90 95 100

acc agc cac aac ctg gcc gag ctg gag gcc tac ctg gct gcc ctc acc 988
Thr Ser His Asn Leu Ala Glu Leu Glu Ala Tyr Leu Ala Ala Leu Thr
105 110 115

cag ctc cgc gct ctg gtc tac tac gcc cag cgc ctg ctg gtt acc aat 1036
Gln Leu Arg Ala Leu Val Tyr Tyr Ala Gln Arg Leu Leu Val Thr Asn
120 125 130 135

cgg ccg ggg gta ctc ttc ttt gag ggc gac gag ggg ctc acc gcc gac 1084
Arg Pro Gly Val Leu Phe Phe Glu Gly Asp Glu Gly Leu Thr Ala Asp
140 145 150

ttc ctc cgg gag tat gtc acg ctg cat aag gga tgc ttc tat ggc cgc 1132

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Phe Leu Arg Glu Tyr Val Thr Leu His Lys Gly Cys Phe Tyr Gly Arg
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tgc ctg ggc ttc cag ttc acg cct gcc atc cgg cca ttc ctg cag acc   1180
Cys Leu Gly Phe Gln Phe Thr Pro Ala Ile Arg Pro Phe Leu Gln Thr
        170                 175                 180

atc tcc att ggg ctg gtg tcc ttc ggg gag cac tac aaa cgc aac gag   1228
Ile Ser Ile Gly Leu Val Ser Phe Gly Glu His Tyr Lys Arg Asn Glu
    185                 190                 195

aca ggc ctc agt gtg gcc gcc agc tct ctc ttc acc agc ggc cgc ttt   1276
Thr Gly Leu Ser Val Ala Ala Ser Ser Leu Phe Thr Ser Gly Arg Phe
200                 205                 210                 215

gcc atc gac ccc gag ctg cgt ggg gct gag ttt gag cgg atc aca cag   1324
Ala Ile Asp Pro Glu Leu Arg Gly Ala Glu Phe Glu Arg Ile Thr Gln
                220                 225                 230

aac ctg gac gtg cac ttc tgg aaa gcc ttc tgg aac atc acc gag atg   1372
Asn Leu Asp Val His Phe Trp Lys Ala Phe Trp Asn Ile Thr Glu Met
            235                 240                 245

gaa gtg cta tcg tct ctg gcc aac atg gca tcg gcc acc gtg agg gta   1420
Glu Val Leu Ser Ser Leu Ala Asn Met Ala Ser Ala Thr Val Arg Val
        250                 255                 260

agc cgc ctg ctc agc ctg cca ccc gaa gcc ttt gag atg cca ctg act   1468
Ser Arg Leu Leu Ser Leu Pro Pro Glu Ala Phe Glu Met Pro Leu Thr
    265                 270                 275

gcc gac ccc acg ctc acg gtc acc atc tca ccc cca ctg gcc cac aca   1516
Ala Asp Pro Thr Leu Thr Val Thr Ile Ser Pro Pro Leu Ala His Thr
280                 285                 290                 295

ggc cct ggg ccc gtc ctc gtc agg ctc atc tcc tat gac ctg cgt gaa   1564
Gly Pro Gly Pro Val Leu Val Arg Leu Ile Ser Tyr Asp Leu Arg Glu
                300                 305                 310

gga cag gac agt gag gag ctc agc agc ctg ata aag tcc aac ggc caa   1612
Gly Gln Asp Ser Glu Glu Leu Ser Ser Leu Ile Lys Ser Asn Gly Gln
            315                 320                 325

cgg agc ctg gag ctg tgg ccg cgc ccc cag cag gca ccc cgc tcg cgg   1660
Arg Ser Leu Glu Leu Trp Pro Arg Pro Gln Gln Ala Pro Arg Ser Arg
        330                 335                 340

tcc ctg ata gtg cac ttc cac ggc ggt ggc ttt gtg gcc cag acc tcc   1708
Ser Leu Ile Val His Phe His Gly Gly Gly Phe Val Ala Gln Thr Ser
    345                 350                 355

aga tcc cac gag ccc tac ctc aag agc tgg gcc cag gag ctg ggc gcc   1756
Arg Ser His Glu Pro Tyr Leu Lys Ser Trp Ala Gln Glu Leu Gly Ala
360                 365                 370                 375

ccc atc atc tcc atc gac tac tcc ctg gcc cct gag gcc ccc ttc ccc   1804
Pro Ile Ile Ser Ile Asp Tyr Ser Leu Ala Pro Glu Ala Pro Phe Pro
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cgt gcg ctg gag gag tgc ttc ttc gcc tac tgc tgg gcc atc aag cac   1852
Arg Ala Leu Glu Glu Cys Phe Phe Ala Tyr Cys Trp Ala Ile Lys His
            395                 400                 405

tgc gcc ctc ctt ggc tca aca ggg gaa cga atc tgc ctt gcg ggg gac   1900
Cys Ala Leu Leu Gly Ser Thr Gly Glu Arg Ile Cys Leu Ala Gly Asp
        410                 415                 420

agt gca ggc ggg aac ctc tgc ttc acc gtg gct ctt cgg gca gca gcc   1948
Ser Ala Gly Gly Asn Leu Cys Phe Thr Val Ala Leu Arg Ala Ala Ala
    425                 430                 435

tac ggg gtg cgg gtg cca gat ggc atc atg gca gcc tac ccg gcc aca   1996
Tyr Gly Val Arg Val Pro Asp Gly Ile Met Ala Ala Tyr Pro Ala Thr
440                 445                 450                 455

atg ctg cag cct gcc gcc tct ccc tcc cgc ctg ctg agc ctc atg gac   2044
Met Leu Gln Pro Ala Ala Ser Pro Ser Arg Leu Leu Ser Leu Met Asp
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ccc ttg ctg ccc ctc agt gtg ctc tcc aag tgt gtc agc gcc tat gct   2092
Pro Leu Leu Pro Leu Ser Val Leu Ser Lys Cys Val Ser Ala Tyr Ala
            475                 480                 485

ggt gca aag acg gag gac cac tcc aac tca gac cag aaa gcc ctc ggc   2140
Gly Ala Lys Thr Glu Asp His Ser Asn Ser Asp Gln Lys Ala Leu Gly
        490                 495                 500

atg atg ggg ctg gtg cgg cgg gac aca gcc ctg ctc ctc cga gac ttc   2188
Met Met Gly Leu Val Arg Arg Asp Thr Ala Leu Leu Leu Arg Asp Phe
    505                 510                 515

cgc ctg ggt gcc tcc tca tgg ctc aac tcc ttc ctg gag tta agt ggg   2236
Arg Leu Gly Ala Ser Ser Trp Leu Asn Ser Phe Leu Glu Leu Ser Gly
520                 525                 530                 535

cgc aag tcc cag aag atg tcg gag ccc ata gca gag ccg atg cgc cgc   2284
Arg Lys Ser Gln Lys Met Ser Glu Pro Ile Ala Glu Pro Met Arg Arg
                540                 545                 550

agt gtg tct gaa gca gca ctg gcc cag ccc cag ggc cca ctg ggc acg   2332
Ser Val Ser Glu Ala Ala Leu Ala Gln Pro Gln Gly Pro Leu Gly Thr
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gat tcc ctc aag aac ctg acc ctg agg gac ttg agc ctg agg gga aac   2380
Asp Ser Leu Lys Asn Leu Thr Leu Arg Asp Leu Ser Leu Arg Gly Asn
        570                 575                 580

tcc gag acg tcg tcg gac acc ccc gag atg tcg ctg tca gct gag aca   2428
Ser Glu Thr Ser Ser Asp Thr Pro Glu Met Ser Leu Ser Ala Glu Thr
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ctt agc ccc tcc aca ccc tcc gat gtc aac ttc tta tta cca cct gag   2476
Leu Ser Pro Ser Thr Pro Ser Asp Val Asn Phe Leu Leu Pro Pro Glu
600                 605                 610                 615
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aga ggc ctg ggc gtc cgt gcc gcc ttc ccc gag ggt ttc cac ccc cga   2572
Arg Gly Leu Gly Val Arg Ala Ala Phe Pro Glu Gly Phe His Pro Arg
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cgc tcc agc cag ggt gcc aca cag atg ccc ctc tac tcc tca ccc ata   2620
Arg Ser Ser Gln Gly Ala Thr Gln Met Pro Leu Tyr Ser Ser Pro Ile
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gtc aag aac ccc ttc atg tcg ccg ctg ctg gca ccc gac agc atg ctc   2668
Val Lys Asn Pro Phe Met Ser Pro Leu Leu Ala Pro Asp Ser Met Leu
    665                 670                 675

aag agc ctg cca cct gtg cac atc gtg gcg tgc gcg ctg gac ccc atg   2716
Lys Ser Leu Pro Pro Val His Ile Val Ala Cys Ala Leu Asp Pro Met
680                 685                 690                 695

ctg gac gac tcg gtc atg ctc gcg cgg cga ctg cgc aac ctg ggc cag   2764
Leu Asp Asp Ser Val Met Leu Ala Arg Arg Leu Arg Asn Leu Gly Gln
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ccg gtg acg ctg cgc gtg gtg gag gac ctg ccg cac ggc ttc ctg acc   2812
Pro Val Thr Leu Arg Val Val Glu Asp Leu Pro His Gly Phe Leu Thr
            715                 720                 725

cta gcg gcg ctg tgc cgc gag acg cgc cag gcc gca gag ctg tgc gtg   2860
Leu Ala Ala Leu Cys Arg Glu Thr Arg Gln Ala Ala Glu Leu Cys Val
        730                 735                 740

gag cgc atc cgc ctc gtc ctc act cct ccc gcc gga gcc ggg ccg agc   2908
Glu Arg Ile Arg Leu Val Leu Thr Pro Pro Ala Gly Ala Gly Pro Ser
    745                 750                 755

ggg gag acg ggg gct gcg ggg gta gac ggg ggc tgc ggg ggg cga cac   2956
Gly Glu Thr Gly Ala Ala Gly Val Asp Gly Gly Cys Gly Gly Arg His
760                 765                 770                 775

taa aagcctgttg ttcccatctg cgccggcctc cgtcatgaat gccttccggg        3009


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